REMARKS

Reconsideration and continued examination of the above-identified application are respectfully requested.

The amendment to the claim 17 further defines what the applicant regards as the invention. Full support for the amendment can be found in the specification and claims as originally filed, for instance, at page 6, lines 5-7 of the present application. Accordingly, no questions of new matter should arise and entry of the amendment is respectfully requested.

A. The specification stands objected to under 35 U.S.C. §132(a) for introducing new matter into the disclosure

At page 2 of the final Office Action, the Examiner objected to the amendment filed on February 16, 2006, under 35 U.S.C. §132(a) for introducing new matter into the disclosure. Particularly, the Examiner alleged that the amendment to claim 17 which recites "the fuel cell comprises an active layer comprising a carbon support that comprises at least one modified carbon product" is not supported by the original disclosure because the entire application discloses that either "the electrode, the counter-electrode or the electrolyte membrane comprises at least one modified carbon product."

Also, in the final Office Action, as well as the Advisory Action dated June 30, 2006, the Examiner is contending whether there is adequate support for the use of an active layer in other components of the fuel cell, since the Examiner believes that claim 17 would encompass the presence of an active layer in any other fuel cell component.

For the following reasons, the Examiner's objection is respectfully traversed.

The Examiner's objection essentially amounts to an amendment made to claim 17 and not

any amendment made to the specification of the application. Thus, the Examiner's new matter objection to the specification as set forth in pages 2 and 3 of the final Office Action is inappropriate and should be withdrawn. This is further confirmed by M.P.E.P §706.03(o), which states that if alleged new matter is only added to a claim, an objection using the paragraph cited by the Examiner should not be made. Further, the applicants provide the following additional comments with regard to this objection.

To assist the Examiner, claim 17 has been made clear with respect to the active layer being a part of a gas diffusion electrode. This language in claim 17 is clearly supported by the present application. For instance, at page 4, lines 17-19, the present application clearly states that the active layer can contain at least one modified carbon product and that the active layer is part of a gas diffusion electrode. It is respectfully noted that claim 17 specifically recites a gas diffusion electrode, and further recites that the fuel cell comprises an active layer. Clearly, the active layer would be part of the gas diffusion electrode. Moreover, at page 5, lines 4-7, the present application clearly recites, without reference to an electrode or even fuel cell, that the present invention relates to a modified carbon product in the active layer having a modified carbon product having attached at least one organic group and catalytic material. Elsewhere in the present application, there is further support. Thus, the language as set forth in claim 17 is clearly supported by the present application.

Accordingly, for these reasons, this objection should be withdrawn.

B. Claims 1, 3-8, 10, and 17-28 stand rejected under 35 U.S.C. §112, First Pargraph, as failing to comply with the written description requirement

At page 4 of the final Office Action, the Examiner rejected claims 1, 3-8, 10, and 17-28

under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Particularly, the Examiner repeated the position taken with respect to the objection to the specification in view of claim 17 as amended by the Amendment filed on February 16, 2006.

Essentially, the Examiner is asserting that claim 17 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art, at the time the application was filed, had possession of the claimed invention. Again, the Examiner is arguing that the phrase "the fuel cell comprises an active layer comprising a carbon support that comprises at least one modified carbon product," is not supported by the original disclosure because the entire application discloses that either "the electrode, the counter-electrode or the electrolyte membrane comprises at least one modified carbon product." The Examiner further argues that nothing in the specification as filed encompasses or supports using or making fuel cell components that contain active layers in seals, gaskets, end plates, separators, or bi-polar plates, current collectors, and the like.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claims 1, 3-8, 10, and 17-28 should be withdrawn.

With respect to satisfying the written description requirement, the question involves whether the subject matter of a claim is supported by the disclosure of an application as filed. As stated in M.P.E.P. §2163.02:

> The courts have described the essential question to be addressed in a description requirement issue in a variety of ways. An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the

> invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).

The applicants respectfully disagree with the Examiner's position on this language. This language in claim 17 is clearly supported by the present application. However, as indicated, claim 17 has been amended to clarify the active layer location. For instance, at page 4, lines 17-19, the present application clearly states that the active layer can contain at least one modified carbon product and that the active layer is part of a gas diffusion electrode. It is respectfully noted that claim 17 specifically recites a gas diffusion electrode, and further recites that the fuel cell comprises an active layer. Clearly, the active layer would be part of the gas diffusion electrode. Moreover, at page 5, lines 4-7, the present application clearly recites, without reference to an electrode or even fuel cell, that the present invention relates to a modified carbon product in the active layer having a modified carbon product having attached at least one organic group and catalytic material. Elsewhere in the present application, there is further support. Thus, the language as set forth in claim 17 is clearly supported by the present application.

Accordingly, for these reasons, this rejection should be withdrawn.

C. Claims 1, 3-8, 10, and 17-28 stand rejected under 35 U.S.C. §112, first paragraph as based on a disclosure that is not enabling

At page 5 of the final Office Action, the Examiner rejected claims 1, 3-8, 10, and 17-28 under 35 U.S.C. §112, first paragraph as based on a disclosure that is not enabling. Particularly, the Examiner alleged that the specific subject matter "wherein the electrode or counter electrode or

both comprise at least one modified carbon product" is critical or essential to the practice of the invention, but it is not included in the claims. Further, the Examiner alleged that since claim 17, by way of the February 16, 2006 Amendment recites that "the fuel cell comprises an active layer comprising a carbon support that comprises at least one modified carbon product," such that it includes other fuel cell components other than the electrode, the counter electrode, or the electrolyte membrane, the present application is not enabling with respect to this feature.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claims 1, 3-8, 10, and 17-28 should be withdrawn.

To satisfy the enablement requirement, the information contained in the disclosure of the present application must be sufficient to inform those skilled in the relevant art how to make and use the claimed invention. This clearly has been done with respect to claim 17 and the claims dependent thereon in view of the present application. As stated above with respect to the objection to the specification and the rejection in view of the written description requirement, there is clear enablement in the present application to make and use the subject matter as claimed.

Claim 17 recites a fuel cell that comprises a gas diffusion electrode, a gas diffusion counter-electrode, and a solid electrolyte membrane located between the electrode and counter-electrode. Furthermore, claim 17 recites that the fuel cell comprises an active layer comprising a carbon support, wherein the carbon support comprises at least one modified carbon product and catalyst particles. This is clearly supported in the present application from the standpoint of how to make and use the invention. For instance, Fig. 4 of the present application clearly provides one embodiment of the structural setup of the fuel cell. Furthermore, the particular examples of organic groups that are proton conducting are provided in the present application, for instance, at page 7, lines 4-16, and page 10, lines 11-20, and means to attach organic groups is further described, for

instance, at page 16, lines 10-15 of the present application. Furthermore, the general embodiment, which involves the presence of the catalyst layer or active layer is described, for instance, at page 6, lines 5-10 of the present application.

Furthermore, as stated above with respect to the earlier objection to the specification and rejection for lack of written description, an active layer is a term understood by those skilled in the art and is also known as a catalyst layer. As shown in the present application, for instance, in Fig. 4, the active layer or catalyst layer have a particular use in a fuel cell, and the Examiner's argument that an active layer could be used in some other component of the fuel cell, such as a seal, gasket, end plate, and the like, simply is not supported by any cited reference, and is not supported in general by what one skilled in the art would consider to be the use of an active layer in a fuel cell.

Further, the Examiner has never disputed that the present application clearly describes active layers, which can contain modified carbon products of the present invention. Accordingly, for these reasons, this rejection should be withdrawn.

D. Claim 17 stands rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,881,511

At page 6 of the final Office Action, the Examiner rejected claim 17 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,881,511. The Examiner alleged that the claims of the '511 patent encompass the use of a modified carbon product in a solid polymer fuel cell and/or metal-air battery, which the Examiner alleged is a type of fuel cell.

In the Advisory Action dated June 30, 2006, the Examiner asserts that this double patenting rejection is proper because U.S. Patent No. 6,881,511 and the present application is "partially

owned" by Cabot Corporation and, therefore, the double patenting rejection is proper.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claim 17 should be withdrawn.

U.S. Patent No. 6,881,511 B1 is assigned to Cabot Corporation and Edison Thermoelettrica, SpA, whereas the present application is assigned only to Cabot Corporation. Therefore, the present application and the '511 patent are not commonly assigned/owned. Further, there is no common inventor between the present application and the '511 patent. Also, M.P.E.P. §804 provides a flow chart showing that when the application and patent are not commonly owned and do not have a common inventor, no double-patenting rejection should be made.

The applicants could not find a specific definition of "common assignee or inventor" in M.P.E.P. §804, but it is clear that U.S. Patent No. 6,881,511 and the present application do not have exact common ownership. One can look to the definition of common ownership under 35 U.S.C. §103(c) for guidance and the guidance provided under M.P.E.P. §706.02(l)(2) wherein "commonly owned" is defined. M.P.E.P. §706.02(l)(2) provides in part:

> The term "commonly owned" is intended to mean that the subject matter which would otherwise be prior art to the claimed invention and the claimed invention are entirely or wholly owned by the same person(s) or organization(s)/business entity(ies) at the time the claimed invention was made. If the person(s) or organization(s) owned less than 100 percent of the subject matter which would otherwise be prior art to the claimed invention, or less than 100 percent of the claimed invention, then common ownership would not exist. Common ownership requires that the person(s) or organization(s)/business entity(ies) own 100 percent of the subject matter and 100 percent of the claimed invention.
>
> Specifically, if an invention claimed in an application is owned by more than one entity and those entities seek to exclude the use of a reference under 35 U.S.C. 103, then the reference must be owned by, or subject to an obligation of assignment to, the same entities that owned the application, at the time the later invention was made. For example, assume Company A owns twenty percent of patent Application X and Company B owns eighty percent of patent Application X at the time the invention of Application X was made. In addition, assume that

> Companies A and B seek to exclude the use of Reference Z under 35 U.S.C. 103. Reference Z must have been co-owned, or have been under an obligation of assignment to both companies, on the date the invention was made in order for the exclusion to be properly requested. A statement such as "Application X and Patent Z were, at the time the invention of Application X was made, jointly owned by Companies A and B" would be sufficient evidence of common ownership.

While the applicants realize that this is not the official definition of common ownership for purposes of obviousness-type double patenting, the applicants do believe that this offers guidance to further support the applicants' position that common ownership means the same exact ownership as opposed to the "partially owned" position taken by the Examiner. If this was not the situation, how could a terminal disclaimer be signed, since only one of the owners would be terminally disclaiming and the other owner (who is not a co-owner of the present application) would not be disclaiming.

For these reasons, this rejection should be withdrawn.

E. Claims 1, 3-8, 10, and 17-28 stand rejected under 35 U.S.C. §102(e) over Yu et al. (U.S. Patent No. 6,399,202)

At page 8 of the final Office Action, the Examiner rejected claims 1, 3-8, 10, and 17-28 under 35 U.S.C. §102(e) over Yu et al. (U.S. Patent No. 6,399,202). The Examiner alleged that Yu et al. shows gas diffusion electrodes containing a modified carbon product, wherein the modified carbon product is a carbon product having attached at least one organic group. Furthermore, the Examiner alleged that the gas diffusion electrodes of Yu et al. are used in fuel cells. The Examiner further alleged that the gas diffusion electrodes prepared with modified carbon material have broad applications and that it would be inherent that a fuel cell should at least include two electrodes and an electrolyte to satisfy mechanical, chemical, and kinetic requirements so as to obtain a fully

functional or working fuel cell that converts electrochemical energy into electrical energy. The Examiner further alleged that Yu et al. discloses gas diffusion electrodes including carbon supports therefor and in combination with electrocatalyst particles for the preparation of an active layer material. The Examiner alleged that Yu et al. incorporates in its entirety, by reference, the teachings of Dirven et al. (U.S. Patent No. 5,561,000), which shows that a fuel cell is mainly composed of the assembly of a cathode, an anode, and a solid electrolyte membrane between the cathode and the anode. The Examiner alleged that Yu et al. describes with sufficient specificity that a carbon-modified product is present in a layered form and that there is a preference of proton conducting properties. The Examiner alleged that a layer comprising any combination of modified materials would produce a layer exhibiting the specific proton conducting property, and that products of identical chemical composition cannot have mutually exclusive properties, and thus, the proton conducting property is necessarily present in the prior art material. Finally, the Examiner alleged that the limitation "a thickness of about 5 microns or less" means that no active layer is required.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claim 17, 3, 4, 6-8, 10, 18, 19, 22, 26-28 should be withdrawn.

Claim 17 recites a fuel cell wherein an active layer is present and contains a modified carbon product having attached at least one organic group that is proton-conducting. These features are not taught or suggested in Yu et al. Examples 14 and 15 of Yu et al. do show mixing specific catalyst particles, namely cobalt porphyrin with a modified carbon product, however, it is important to realize that in examples 14 and 15 of Yu et al., and more particularly, example 15, the carbon-supported catalyst was heated to high temperature, such as 900° C, for one hour in order to be activated and to cause "pyrolisis." In other words, at this high temperature, the organic groups present on the carbon product would have been destroyed by the high temperature. The applicants

shall be submitting a Declaration under 37 C.F.R. §1.132 to further prove this point. In Yu et al., it must be realized that Yu et al. considered the use of modified carbon products to be useful for purposes of obtaining a uniform dispersion of the modified carbon product in various components of the fuel cell, but did not recognize or achieve the benefit of maintaining proton-conducting groups on the carbon support of the active layer once the active layer was formed and used in a fuel cell. Thus, Yu et al. appreciated the benefit of obtaining uniform dispersions through the use of organic groups attached onto carbon products, but did not appreciate or show the advantage of maintaining certain types of organic groups on active layers, once the active layer is formed and ready to use. In fact, in example 15, second paragraph, Yu et al. even acknowledges that pyrolysis occurred, which clearly would have destroyed the organic groups on the carbon products. Thus, a purpose and an advantage of the claimed invention, namely maintaining proton conducting groups on the modified carbon product in an active layer, is not taught in Yu et al.

The advantages of maintaining these proton conducting groups on the carbon product as part of the active layer is discussed in considerable detail in the present application, including the examples, for instance, beginning at page 22. Also, Yu et al., at col. 2, lines 60-64, actually discusses properties of the monomer, and not of the modified carbon product, contrary to the Examiner's assertions in the Office Action. Further, the remaining portions of Yu et al. identified by the Examiner do not discuss the presence of proton conducting groups on the carbon product, once the active layer is formed. As stated, the examples in Yu et al. actually pyrolize the carbon, thus destroying the groups. For these reasons, the rejection should be withdrawn.

2) The rejection of claim 1 should be withdrawn.

Claim 1 is dependent on claim 17 and recites that the active layer has a thickness of 10 microns or less. For the reasons set forth above with respect to the patentability of claims 17 et

seq., claim 1 would also be patentable over Yu et al.

Further, with respect to the Examiner construing claim 1 to mean that no active layer is present is improper for numerous reasons. First, this would create a problem under the Doctrine of Claim Differentiation and further would broaden claim 17. Clearly, when ranges are characterized with "or less" language, the claim is not construed by the U.S. Patent and Trademark Office in the manner proposed by the Examiner. In addition, Yu et al. does not teach an active layer having a thickness of 10 microns or less and, certainly, the Examiner has not pointed to any part of Yu et al. which would show this thickness.

More specifically, the "or less" phrase does not mean zero and the Examiner cannot misconstrue the clear recitation in the claim of an active layer being present. With regard to the Examiner's reference to M.P.E.P. 2173.05(c) §II, this section of the M.P.E.P. does not support the Examiner's decision with regard to no active layer being present. This part of the M.P.E.P. clearly provides an indication that the language used by the applicants in claim 1 would mean that an active layer is present. For instance, in one example set forth in the M.P.E.P., a chemical reaction process is provided as an example with the phrase "be maintained at less than 7 mole percent." The Examiner argued that this would include substantially no ingredient. The Court did not agree because the claim was clearly directed to a reaction process which did not warrant distorting the overall meaning of the claim to preclude performing the claimed process. Similarly, in the present application, an active layer is clearly recited and then the thickness of the active layer is provided. Providing a thickness of a component clearly recognizes that the component is present and that the numerical range is simply quantifying the thickness of the layer. Furthermore, the remaining cases set forth in this M.P.E.P. section clearly state that the meanings are based on "the factual situations of the reported cases." In the present application, clearly an active layer is recited and is present.

Further, the particular M.P.E.P. section relied upon by the Examiner generally refers to amounts of ingredients, whereas in claim 1 of the present application, clearly, an active layer is present and the thickness range simply characterizes the thickness of the active layer. The fact that an active layer is present must mean that it has a certain thickness and this thickness cannot be zero. Those skilled in the art, as well as a common lay person, would clearly recognize this correlation. For these reasons, the Examiner's rejection of claim 1 should be withdrawn.

3) The rejection of claim 20 should be withdrawn.

Claim 20 is dependent on claim 17 and recites that the active layer has a thickness of from about 2 microns to about 5 microns. Yu et al. does not teach or suggest an active layer having a thickness of from 2 microns to about 5 microns. The present invention is an improvement over Yu et al., wherein the present inventor discovered the ability to maintain the organic groups present on the carbon product once the active layer is formed and present in a fuel cell such that the proton conducting abilities of the organic groups are achieved. This permits a thinner active layer, which is simply not taught in Yu et al.

Also, for the reasons set forth above with respect to claim 17 et seq., claim 20 would be patentable as well.

Accordingly, for these reasons, this rejection should be withdrawn.

4) The rejection of claim 21 should be withdrawn.

Claim 21 is dependent on claim 17 and recites that the catalyst particles are attached or adsorbed onto the modified carbon product. The catalyst particles that are attached or adsorbed onto the modified carbon product would be with respect to their presence in the active layer since this claim is dependent on claim 17.

For the reasons set forth above with respect to the patentability of claim 17, this rejection

should be withdrawn as well. Furthermore, Yu et al. simply does not show an active layer which upon being formed and present in a fuel cell has catalyst particles that are attached or adsorbed onto the modified carbon product. As stated, Yu et al. does not teach an active layer which maintains the organic groups present on the active layer. To the contrary, Yu et al. destroyed the organic groups on the carbon products by pyrolysis. For these reasons, this rejection should be withdrawn as well.

5) The rejection of claim 23 should be withdrawn.

Claim 23 is dependent on claim 21 and recites that the catalyst particles that are attached or adsorbed onto the modified carbon product comprise a cationic metal catalyst complex that is attached or adsorbed onto the modified carbon product.

This simply is not taught in Yu et al., which destroys the organic groups by pyrolysis as mentioned above with respect to the patentability of claim 17. Further, Yu et al. does not specifically teach cationic metal catalyst complexes that are attached or adsorbed onto the modified carbon product. For these reasons, this rejection should be withdrawn.

6) The rejection of claims 24 and 25 should be withdrawn.

Claim 24 is dependent on claim 21 and recites that the catalyst particles that are attached or adsorbed are catalyzed treated carbon products. Claim 25 recites that the catalyzed treated carbon products are partially or fully hydrophobic.

Again, as mentioned above, for the same reasons with respect to the patentability of claim 17, these claims would also be patentable over Yu et al. In addition, Yu et al. does not teach catalyzed treated carbon products being present in an active layer. For these reasons, this rejection should be withdrawn as well.

F. Claims 1, 17, and 26-28 stand rejected under 35 U.S.C. §102(e) over Tosco et al. (U.S. Patent No. 6,881,511)

At page 13 of the final Office Action, the Examiner rejected claims 1, 17, and 26-28 under 35 U.S.C. §102(e) over Tosco et al. (U.S. Patent No. 6,881,511).

The Examiner alleged that Tosco et al. discloses gas diffusion electrodes containing modified carbon products wherein the modified carbon product is a carbon product having attached at least one organic group and can be used for at least one component of the electrodes such as the active layer and/or the blocking layer. The Examiner further alleged that Tosco et al. discloses that their invention relates to gas diffusion electrodes such as in metal-air batteries and fuel cells.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claim 17 should be withdrawn.

Claim 17 recites a fuel cell wherein an active layer is present and contains a modified carbon product having attached at least one organic group that is proton-conducting. Tosco et al. has a disclosure that is almost identical to Yu et al. These features are not taught or suggested in Tosco et al. for the same reasons. Examples 14 and 15 of Tosco et al. do show mixing specific catalyst particles, namely cobalt porphyrin with a modified carbon product, however, it is important to realize that in examples 14 and 15 of Tosco et al., and more particularly, example 15, the carbon-supported catalyst was heated to high temperature, such as 900° C, for one hour in order to be activated and to cause "pyrolysis." In other words, at this high temperature, the organic groups present on the carbon product would have been destroyed by the high temperature. In Tosco et al., it must be realized that Tosco et al. considered the use of modified carbon products to be useful for purposes of obtaining a uniform dispersion of the modified carbon product in various components of the fuel cell, but did not recognize or achieve the benefit of maintaining proton-conducting

groups on the carbon support of the active layer once the active layer was formed and used in a fuel cell. Thus, Tosco et al. appreciated the benefit of obtaining uniform dispersions through the use of organic groups attached onto carbon products, but did not appreciate or show the advantage of maintaining certain types of organic groups on active layers, once the active layer is formed and ready to use. In fact, in example 15, second paragraph, Tosco et al. even acknowledges that pyrolysis occurred, which clearly would have destroyed the organic groups on the carbon products. Thus, a purpose and an advantage of the present invention, namely maintaining proton conducting groups on the modified carbon product in an active layer, is not taught or suggested in Tosco et al.

The advantages of maintaining these proton conducting groups on the carbon product as part of the active layer is discussed in considerable detail in the present application, including the examples, for instance, beginning at page 22. Further, the remaining portions of Tosco et al. identified by the Examiner do not discuss the presence of proton conducting groups on the carbon product, once the active layer is formed. As stated, the examples in Tosco et al. actually pyrolize the carbon, thus destroying the groups. For these reasons, Tosco et al. does not teach or suggest the claimed invention and the rejection should be withdrawn.

2) The rejection of claim 1 should be withdrawn.

Claim 1 is dependent on claim 17 and recites that the active layer has a thickness of 10 microns or less. For the reasons set forth above with respect to the patentability of claims 17 et seq., claim 1 would also be patentable over Tosco et al.

Further, with respect to the Examiner construing claim 1 to mean that no active layer is present, this is improper for the reasons previously presented in the rejection of claim 1 over Yu et al. These reasons are incorporated herein. Clearly, when ranges are characterized with "or less" language, the claim is not construed by the U.S. Patent and Trademark Office in the manner now

proposed by the Examiner. In addition, Tosco et al. does not teach an active layer having a thickness of 10 microns or less and, certainly, the Examiner has not pointed to any part of Tosco et al. which would show this thickness.

For these reasons, the Examiner's rejection of claim 1 should be withdrawn.

G. Claims 1 and 17 stand rejected under 35 U.S.C. §102(b) over Swathirajan et al. (U.S. Patent No. 5,316,871)

At page 15 of the final Office Action, the Examiner rejected claims 1 and 17 under 35 U.S.C. §102(b) over Swathirajan et al. (U.S. Patent No. 5,316,871). The Examiner alleged that Swathirajan et al. discloses membrane-electrode assemblies for electrochemical cells, particularly, fuel cells and that the fuel cells include first and second electrodes and a solid polymer electrolyte membrane. The Examiner further alleged that each electrode is adhered to a respective one of the first and second membrane surfaces and that each electrode comprises a respective group of finely divided carbon particles, finely divided catalytic particles supported in internal and external surfaces of the carbon particles and a proton conductive material intermingled with the catalytic and carbon particles. The Examiner further alleged that the carbon groups contain carboxylic groups on the carbon surface. The Examiner further alleged that the limitation "a thickness of about 5 microns or less" for the active layer means that no active layer is required. Particularly, at page 19 of the Office Action, the Examiner alleged that Swathirajan et al. discloses that it is known to attach or bond the organic groups to the active layer (Col. 12, lines 60-65), and therefore Swathirajan et al. readily envisions attaching or bonding an organic group such as a carboxylic group to the surface of the carbon material.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claim 17 should be withdrawn.

Claim 17 requires a solid electrolyte membrane and an active layer having a modified carbon product having an organic group that is proton-conducting. Swathirajan et al. does not teach at least one organic group that is proton-conducting that is attached to the active layer. Swathirajan et al. only mentions carbon particles that have carboxylic groups, at col. 12, lines 60-65. Carboxylic groups are not proton-conducting groups. The Examiner has not provided any other showing that Swathirajan et al. teaches or suggests at least one organic group that is proton-conducting attached to an active layer.

For these reasons, Swathirajan et al. does not teach or suggest the claimed invention and the rejection should be withdrawn.

2) The rejection of claim 1 should be withdrawn.

Claim 1 is dependent on claim 17 and recites that the active layer has a thickness of 10 microns or less. For the reasons set forth above with respect to the patentability of claims 17 et seq., claim 1 would also be patentable over Swathirajan et al. Further, with respect to the Examiner construing claim 1 to mean that no active layer is present, this is improper for the reasons previously presented in the rejection of claim 1 over Yu et al. These reasons are incorporated herein. Clearly, when ranges are characterized with "or less" language, the claim is not construed by the U.S. Patent and Trademark Office in the manner now proposed by the Examiner. In addition, Swathirajan et al. does not teach an active layer having a thickness of 10 microns or less and, certainly, the Examiner has not pointed to any part of Swathirajan et al. which would show this thickness.

For these reasons, the Examiner's rejection of claim 1 should be withdrawn.

H. Claim 1 stands rejected under 35 U.S.C. §103(a) over (a) Yu et al. (U.S. Patent No. 6,399,202); and/or (b) Tosco et al. (U.S. Patent No. 6,881,511); and/or (c) Swathirajan et al. (U.S. Patent No. 5,316,871) and further in view of Watakabe (U.S. Patent Application Publication No. 2003/0198854).

At page 17 of the Office Action, the Examiner rejects claim 1 under 35 U.S.C. §103(a) as being unpatentable over (a) Yu et al. (U.S. Patent No. 6,399,202); and/or (b) Tosco et al. (U.S. Patent No. 6,881,511); and/or (c) Swathirajan et al. (U.S. Patent No. 5,316,871) as applied to claim 17 above, and further in view of Watakabe (U.S. Patent Application Publication No. 2003/0198854).

The Examiner relies on Yu et al., Tosco et al., and Swathirajan et al. as set forth above with respect to the rejection of claim 17. The Examiner then asserts that Watakabe shows a gas diffusion electrode that has a gas diffusion electrode layer having a thickness of 10 microns. The Examiner asserts that it would be obvious to make a carbon modified layer having this thickness in view of Watakabe.

For the following reasons, the Examiner's rejection is respectfully traversed.

1) The rejection of claim 1 should be withdrawn.

As stated before, claim 1, which is dependent on claim 17, recites an active layer having thickness of 10 microns or less. The deficiencies of Yu et al., Tosco et al., and Swathirajan et al. as described above apply equally here. With respect to Watakabe, there is a reference to a platinum-supporting carbon to form a gas diffusion electrode layer having a thickness of 10 microns, but Watakabe et al. does not use a modified carbon product as part of the active layer. Therefore, it would amount to an obvious-to-try argument to simply take a gas diffusion electrode layer having a thickness of 10 microns, which does not use the same material of the cited references, and conclude

that the active layer of the primary references of Yu et al., Tosco et al, or Swathirajan et al. could make an active layer having an active layer of 10 microns or less.

In addition, with respect to Yu et al., since Yu et al. is assigned to Cabot Corporation, and the present application is assigned to Cabot Corporation, under 35 U.S.C. §103(c), this rejection should be withdrawn for this additional reason.

I. The Examiner's Refusal to Consider the Information Disclosure Statement filed July 13, 2006

As part of the response to the final Office Action, a Supplemental Information Disclosure Statement was filed on June 13, 2006. The Information Disclosure Statement was filed under 37 C.F.R. §1.97(c) and the petition fee was filed. The applicants certified that the information in the Supplemental Information Disclosure Statement was first cited in a communication from the U.S. Patent and Trademark Office in a counterpart application not more than three months prior to the filing of the Information Disclosure Statement.

In response, and as set forth in the Advisory Action dated June 30, 2006, the Examiner stated that the Information Disclosure Statement failed to comply with 37 C.F.R. §1.197(d) because it lacked a statement as specified in 37 C.F.R. §1.197(e). The Examiner's assertion was that the exact language of 37 C.F.R. §1.197(e)(1) was not used.

In response, the appellants believe that the Supplemental Information Disclosure Statement was properly and timely filed.

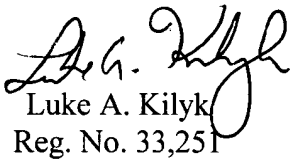
However, to assist the Examiner, the Information Disclosure Statement is being re-submitted with this response and Request for Continued Examination.

CONCLUSION

In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If there are any fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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